BPA Attachment K Planning Process

Planning Meeting I

March 22, 2018



Agenda

- Introductions
- BPA's Attachment K Planning Cycle 2018
- BPA's Attachment K Website 2018
- Economic Study Requests
- Planning Assumptions, Methodology, and Criteria for 2018
- 2017 BPA Transmission Plan
- Next Steps



Attachment K Planning Cycle 2018

Customer Meeting I

March 22, 2018

- 2017 BPA Transmission Plan
- Planning Assumptions, Methodology, Criteria for 2018
- Economic Study Requests
- Posting I

Fall 2018

- Summary of 2018 System Assessment Results and Conceptual Solutions
- Customer Meeting II

Fall 2018

- Draft Plans of Service and Cost
- Posting II

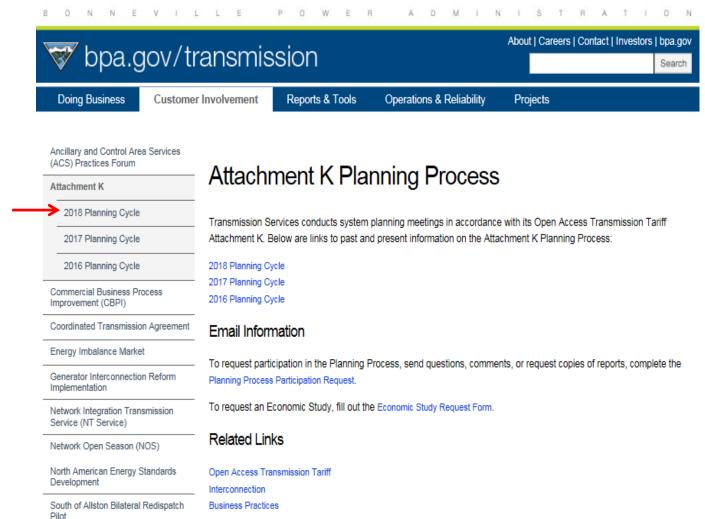
End of Year 2018

2018 BPA Transmission Plan



BPA's Attachment K Planning Process Website

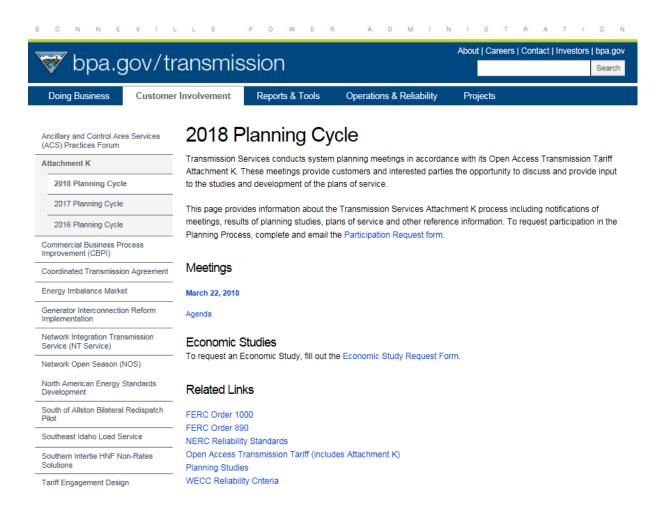
http://www.bpa.gov/transmission/CustomerInvolvement/AttachmentK/Pages/default.aspx





BPA's 2018 Attachment K Planning Process Website

https://www.bpa.gov/transmission/CustomerInvolvement/AttachmentK/Pages/2018-Planning-Cycle.aspx





BPA's Attachment K Planning Process Website

- Meetings
 - Meeting announcements, agendas, etc.
- Reference Materials
 - Materials associated with the Planning Process, participation forms, etc.
- Email Information
 - PlanningParticipationRequest@bpa.gov
 - PlanningEconomicStudyRequest@bpa.gov
- Economic Studies
 - Requesting and Tracking Economic Studies
- Related Information
 - Links to information related to the Planning Process



Economic Study Requests

- What is an Economic Study?
 - Studies may be requested to address congestion issues or the integration of new resources and loads.
- How are Requests for Economic Studies submitted?

PlanningEconomicStudyRequest@bpa.gov

Requests may be submitted any time...

Requests submitted after October 31 will be considered in the next prioritization process

- BPA will complete up to two Economic Studies per year at its expense
- There were no Economic Study Requests received during the annual cycle ending on 10/31/2017



Planning Assumptions & Methodology

- System Reliability Assessments may be based on current or qualified past studies as allowed by the NERC TPL Reliability Standard
 - The 2018 System Assessment will be based primarily on qualified past studies from 2017
 - BPA's 2017 System Assessment relied largely on the results of current studies.



Planning Assumptions

Base Cases

- Loads in the Northwest Area
 - Utilize peak load forecasts for 2, 5, and 10 years out, reviewed and/or updated annually, and off-peak load forecasts for the nearterm (2 years out) planning horizon.
 - Peak load forecasts for both winter and summer seasons.
 - Forecasts provided by Customers for the IOUs and larger utilities (approximately 75-80% of loads)
 - Forecasts developed by BPA's Agency Load Forecasting group if not supplied by customers (approximately 20-25% of loads)

Resources

 Model existing generating resources and selected future resources proposed to be online, if needed to meet the forecast loads within the 10 year horizon.

Planning Assumptions (continued)

- Update Northwest Area database
 - Update with the latest seasonal peak and off-peak load forecasts
 - Update with the latest network topology
 - Model future resources as needed, network expansion projects, and firm transmission obligations
- Sensitivity Cases

Other patterns and conditions may be developed as sensitivities based on:

- Load level, load forecast, or dynamic load model assumptions
- Expected transfers
- Expected in-service dates of new or modified Transmission Facilities
- Reactive resource capability
- Generation additions, retirements, or other dispatch scenarios
- Or other system conditions unique to certain geographical areas

Planning Methodology

- System Assessment.
 - Check network topology and load forecast / load growth assumptions for each area of interest.
 - Modify base cases to stress the study area and benchmark with historical data.
 - Develop sensitivity cases as needed for worst case generation or transfer patterns.
 - Perform steady state power flow simulation of all single contingencies and credible multiple element contingencies.
 - Model RAS as required.
 - Study a large selection of single and multiple contingencies to evaluate voltage stability and transient stability performance.

Planning Methodology (continued)

Identify Potential Problems

- Compare system performance with NERC and WECC Reliability Standards to determine if there are potential system performance deficiencies.
- Identify deficient areas for follow up and possible corrective action plans.
- Problems may include:
 - Steady State Thermal overloads or Under/Over Voltages
 - Stability
 - Insufficient reactive margin (voltage stability)
 - Large voltage or frequency deviations (transient stability)

Develop Alternative Conceptual Solutions

 Solutions to mitigate potential system performance deficiencies may include transmission expansion projects, facility upgrades, and/or non-wires solutions (e.g. energy efficiency, distributed generation, redispatch, or demand side management).

Planning Methodology (continued)

- Cost Estimates for Alternatives
 - Preliminary cost estimates are developed for the alternatives
 - Preliminary estimates are used for comparing cost effectiveness of the alternative solutions
- Develop a Plan of Service for the Preferred Alternative
 - Establish the project team
 - Draft Project Requirements Diagram (PRD) and circulate for comments
 - Initiate Concept Design Document and Project Scoping
 - Finalize the plan of service and PRD
 - Update and refine cost estimates
 - Develop the Business Case and Request capital funding for project



Planning Criteria

Standards and Criteria used for Planning:

- NERC and WECC Reliability Planning Standards
 - NERC (North American Electric Reliability Corporation) TPL-001-4
 - WECC (Western Electricity Coordinating Council) TPL-001-WECC-CRT-3.1 Regional Reliability Criteria

2017 BPA Transmission Plan

- BPA's Plans for Capital Expansion Projects
- Spans the 10 year horizon from 2017-2027
- Projects categorized by
 - Load Service Areas
 - Paths and Interties
 - Generator Interconnections
 - Line and Load Interconnections
- The following information is provided for each Project:
 - Project Description
 - Purpose
 - High-level Cost Estimate
 - Proposed Energization Date

Next Steps

- System Assessment for 2018
- Posting I Fall 2018
 - Summary of 2018 System Assessment Results and Conceptual Solutions

Sign up to participate in future meetings or receive additional information by:

- Filling out the Participation Request form on BPA's Planning Process website and sending it via e-mail to: PlanningParticipationRequest@bpa.gov